



# Monarch Seed Mix

## High Diversity

The Iowa State University Monarch Research Team developed this seed mix for research purposes. The mix includes three milkweed species. Milkweed is the only host plant for monarch caterpillars. The mix also contains nectar-producing species that benefit butterflies as well as many pollinators, such as bees. All species are perennials native to Iowa.

Grass species included in the mix are mostly short to medium height in order to reduce competition with forbs. The plant species were selected to perform in well-drained and moderately well-drained soils. Adjustments may be necessary for wet soils. Iowa State reserves the right to alter this mix as needed depending on research results. Pure Live Seed (PLS) indicates the amount of seed that is capable of developing into seedlings.

Grasses	Scientific Name	PLS: seeds/ft <sup>2</sup>	PLS: oz/acre
Blue Joint Grass	<i>Calamagrostis canadensis</i>	0.75	0.13
Canada Wildrye	<i>Elymus canadensis</i>	0.25	1.76
Prairie June Grass	<i>Koeleria macrantha</i>	1.50	0.33
Bicknell's Sedge	<i>Carex bicknellii</i>	0.20	0.51
Plains Oval Sedge	<i>Carex brevior</i>	0.30	0.45
Field Oval Sedge	<i>Carex molesta</i>	0.25	0.44
Big Bluestem	<i>Andropogon gerardii</i>	0.05	0.22
Side Oats Grama	<i>Bouteloua curtipendula</i>	1.15	5.79
Little Bluestem	<i>Schizachyrium scoparius</i>	3.50	9.97
Indiangrass	<i>Sorghastrum nutans</i>	0.05	0.19
Prairie Cordgrass	<i>Spartina pectinata</i>	0.05	0.36
Tall (Rough) Dropseed	<i>Sporobolus compositus</i>	1.75	2.54
Prairie Dropseed	<i>Sporobolus heterolepis</i>	0.20	0.58
		<b>10.00</b>	<b>23.26</b>

Forbs (Legumes)	Scientific Name	PLS: seeds/ft <sup>2</sup>	PLS: oz/acre
Leadplant	<i>Amorpha canescens</i>	0.50	1.22
Canada Milk Vetch	<i>Astragalus canadensis</i>	1.00	2.56
White Wild Indigo	<i>Baptisia alba</i>	0.03	0.77
White Prairie Clover	<i>Dalea candida</i>	1.50	3.44
Purple Prairie Clover	<i>Dalea purpurea</i>	1.50	4.36
Showy Tick Trefoil	<i>Desmodium canadense</i>	0.10	0.79
		<b>4.63</b>	<b>13.14</b>

Forbs (Non-Legumes)	Scientific Name	PLS: seeds/ft <sup>2</sup>	PLS: oz/acre
Swamp Milkweed	<i>Asclepias incarnata</i>	0.15	1.36
Common Milkweed	<i>Asclepias syriaca</i>	0.15	1.63
Butterfly Milkweed	<i>Asclepias tuberosa</i>	0.08	0.81
Prairie Coreopsis	<i>Coreopsis palmata</i>	0.10	0.44
Pale Purple Coneflower	<i>Echinacea pallida</i>	0.25	2.06
Tall Boneset	<i>Eupatorium altissimum</i>	1.00	0.87
Sawtooth Sunflower	<i>Helianthus grosseserratus</i>	0.20	0.58
Ox Eye Sunflower	<i>Heliopsis helianthoides</i>	0.50	3.46
Rough Blazing Star	<i>Liatris aspera</i>	0.50	1.36
Prairie Blazing Star	<i>Liatris pycnostachya</i>	0.50	1.98
Great Blue Lobelia	<i>Lobelia siphilitica</i>	2.00	0.17
Wild Bergamot	<i>Monarda fistulosa</i>	2.00	1.25
Stiff Goldenrod	<i>Oligoneuron rigidum</i>	2.00	2.13
Foxglove Beardtongue	<i>Penstemon digitalis</i>	2.00	0.67
Prairie Phlox	<i>Phlox pilosa</i>	0.01	0.02
Prairie Cinquefoil	<i>Potentilla arguta</i>	2.00	0.38
Virginia Mountain Mint	<i>Pycnanthemum virginianum</i>	1.00	0.20
Yellow Coneflower	<i>Ratibida pinnata</i>	1.90	2.76
Black Eyed Susan	<i>Rudbeckia hirta</i>	1.00	0.47
Showy Goldenrod	<i>Solidago speciosa</i>	0.75	0.34
White Heath Aster	<i>Symphotrichum ericoides</i>	1.50	0.33
New England Aster	<i>Symphotrichum novae-angliae</i>	1.50	0.99
Sky Blue Aster	<i>Symphotrichum oolentangiense</i>	1.00	0.55
Blue Vervain	<i>Verbena hastata</i>	1.00	0.47
Hoary Vervain	<i>Verbena stricta</i>	1.25	1.95
Ironweed	<i>Vernonia fasciculata</i>	0.80	1.45
Culver's Root	<i>Veronicastrum virginicum</i>	2.00	0.11
Golden Alexanders	<i>Zizia aurea</i>	0.75	2.97
	<b>TOTAL (forb-nonlegume)</b>	<b>27.89</b>	<b>31.74</b>
	<b>TOTAL (forb-legume)</b>	<b>4.63</b>	<b>13.14</b>
	<b>TOTAL (grass)</b>	<b>10.00</b>	<b>23.26</b>
	<b>GRAND TOTAL</b>	<b>42.52</b>	<b>68.14</b>

Iowa State University	Bloom Month							Soil				
Common Name	APR	MAY	JUN	JUL	AUG	SEP	OCT	WET	WET-MESIC	MESIC	DRY-MESIC	DRY
<b>Grasses/Sedges</b>												
Prairie June Grass		M	J	J								
Bicknell's Sedge			J	J								
Plains Oval Sedge			J	J								
Field Oval Sedge			J	J								
Blue Joint Grass			J	J	A							
Big Bluestem			J	J	A	S						
Prairie Cordgrass				J	A	S						
Canada Wildrye				J	A	S	0					
Little Bluestem				J	A	S	0					
Side Oats Grama					A	S						
Indiangrass					S	S						
Prairie Dropseed					A	S	0					
Tall (Rough) Dropseed					A	S	0					
<b>Forbs</b>												
Colors represent bloom color												
Golden Alexanders	A	M	J									
Prairie Phlox		M	J	J								
White Wild Indigo			J	J								
Pale Purple Coneflower			J	J								
Foxglove Beardtongue			J	J								
Leadplant			J	J	A							
Canada Milk Vetch			J	J	A							
Swamp Milkweed			J	J	A							
Common Milkweed			J	J	A							
Butterfly Milkweed			J	J	A							
Prairie Coreopsis			J	J	A							
Culver's Root			J	J	A							
White Prairie Clover			J	J	A	S						
Ox Eye Sunflower			J	J	A	S						
Prairie Cinquefoil			J	J	A	S						
Virginia Mountain Mint			J	J	A	S						
Hoary Vervain			J	J	A	S						
Black Eyed Susan			J	J	A	S	0					
Showy Tick Trefoil				J	A							
Purple Prairie Clover				J	A	S						
Wild Bergamot				J	A	S						
Prairie Blazing Star				J	A	S						
Yellow Coneflower				J	A	S						
Blue Vervain				J	A	S						
Ironweed				J	A	S						
Rough Blazing Star				J	A	S	0					
Great Blue Lobelia				J	A	S	0					
Tall Boneset					A	S	0					
Sawtooth Sunflower					A	S	0					
Stiff Goldenrod					A	S	0					
Showy Goldenrod					A	S	0					
White Heath Aster					A	S	0					
New England Aster					A	S	0					
Sky Blue Aster					A	S	0					



**Authors:** Seth Appelgate, agricultural specialist in entomology; Sue Blodgett, professor in entomology; Steven Bradbury, professor in natural resource ecology and management; Diane Debinski, professor in ecology; Robert Hartzler, professor in agronomy; John Pleasants, adjunct assistant professor in ecology; and Dana Schweitzer, program coordinator in entomology, Iowa State University. Richard Hellmich, USDA-ARS.

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